

Hydrocarbon Resources in the Caspian Sea:

Geopolitical Impacts

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Abstract

The collapse of the Soviet Union in 1991 created three new riparian states surrounding the Caspian Sea. This maritime realm is resource rich with vast hydrocarbon reserves. Russia and Iran must now come to terms with the reality that they are no longer entitled to split this body of water and its resources between themselves. Azerbaijan, Turkmenistan and Kazakhstan have rightful claims to regions within the Caspian Sea basin that contain the majority of these offshore hydrocarbon reserves. These natural resources have drawn the outside interests of Europe and the United States. The west wishes to reduce Russia's monopoly over Eurasian energy markets with the construction of a Trans-Caspian Pipeline system which would create an east to west hydrocarbon corridor. However, a legal regime for the Caspian Sea is still vehemently contested between these five states. Russia, Iran, Azerbaijan, Turkmenistan and Kazakhstan all realize that whatever legal regime defines the Caspian Sea will have a monumental affect on hydrocarbon production and transportation.

Introduction

The collapse of the Soviet Union in 1991 has disrupted the geopolitical landscape of the Caspian Sea. This has created three new littoral states: Azerbaijan, Turkmenistan and Kazakhstan. Consequently, disputes have emerged over the legal status of this enclosed body of water and whether it should be classified as a sea or a lake. The consequences of the Caspian's legal classification will impact how the nations of this resource wealthy region are able to develop and export its vast hydrocarbon reserves. Ultimately, the outcome of these debates will have an impact on energy markets in the west that wish to access these resources as well.

Thesis & Research Question

My thesis will look at the legal status of the Caspian Sea, its consequences for the five littoral states: Russia, Iran, Azerbaijan, Turkmenistan and Kazakhstan; and how it will impact hydrocarbon production in the region as well as the European energy market. What legal regime should define the Caspian Sea? What are the consequences for energy markets in the Caucasus, Central Asia and Europe as a result of this legal regime?

Background

Hydrocarbon resources are the driving force behind the debates over the demarcation and management of the Caspian Sea. All five littoral states realize the potential for oil and natural gas production that this body of water has. The Caspian Sea is estimated to hold 48 billion barrels of oil and 9 trillion cubic meters of natural gas (U.S. Energy Information Administration, 2013). Azerbaijan, Turkmenistan and Kazakhstan are attempting to hinge their economic independence and recovery upon their ability to capitalize on these resources. The largest share of offshore oil and natural gas lies within their territorial waters (Zimnitskaya, Von Geldern, 2011). Depending

on if the territorial boundaries are laid out in accordance with the *UN Convention on the Law of the Sea* (UNCLOS) these states will also be legally allowed to lay subsea, Trans-Caspian, pipelines that could ultimately create an east west gas corridor.

Russia and Iran have much to lose if the Caspian is governed under UNCLOS because their territorial waters yield the least amount of hydrocarbon resources (Zimnitskaya, Von Geldern, 2011). If a Trans-Caspian Pipeline is installed, Russia is also at risk of losing its dominant position as the sole gateway for exporting eastern energy to the west. If the legal regime of the Caspian Sea ends up following precedents set by international laws that regulate enclosed bodies of water, then no littoral state would be allowed to unilaterally exploit any of the natural resources without consent from the other littoral states. This would also mean that the chances for the construction of a Trans-Caspian Pipeline would disappear. Russia is heavily invested in this type of legal regime because this would afford them the ability to dominate this region through economic and political influence.

The majority of these states (excluding Russia) are landlocked on all sides with the exception of their coasts alongside the Caspian. This presents Azerbaijan, Turkmenistan and Kazakhstan with a unique challenge for exporting oil and natural gas to markets in the west due to a lack of available transportation options. Without the ability to ship these natural resources via tanker these states must rely upon pipelines to supplement the bulk of their exportation needs. The lack of a Caspian legal regime has put subsea pipeline construction on hold, most notably the Trans-Caspian Pipeline which would connect Turkmenistan and Kazakhstan's hydrocarbon resources to Europe via Azerbaijan and Turkey. In addition to bureaucratic challenges, the majority of proposed pipelines exiting this region must also pass through areas that are hostile and unstable making development risky. The Nagorno-Karabakh and South Ossetia conflicts

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present security threats to some of these pipelines. Currently the majority of viable roads through which oil and natural gas can be exported to western markets go through Russia and Azerbaijan. Since the eastern states of Turkmenistan and Kazakhstan have no way to export directly into Azerbaijan, this means that Russia has a monopoly on the exportation of hydrocarbon resources within this region. Russia wishes to continue this status quo in order to keep European markets reliant upon them for energy. Without proper infrastructure in place to export oil and natural gas Azerbaijan, Turkmenistan and Kazakhstan will be unable to fully capitalize on these resources. Ultimately the ability of oil and natural gas to reach foreign markets from Caspian states like Azerbaijan, Turkmenistan and Kazakhstan relies upon a favorable legal regime, regional stability and the substantial development of necessary energy infrastructure.

European nations who currently are heavily reliant upon Russia for oil and natural gas see the Caspian Sea region as a way to diversify and secure their energy sector in the future. Europe receives roughly around 40 percent of its natural gas from Russia (Foy, 2018). If the Caspian Sea is governed under a legal regime that favors the desires of Azerbaijan, Turkmenistan and Kazakhstan then this will allow for the development of subsea pipelines. This would connect Central Asian petroleum to the Southern Gas Corridor in Turkey, providing the European market with an alternative source to buy its oil and natural gas. In effect this would potentially reduce the amount of hydrocarbon resources that Europe gets from Russia. The United States along with its European allies view this as a net positive because if they become less dependent upon Russia for oil and natural gas, Russia loses much of its influence over western states (Coffey, Nifti, 2018).

A Brief History

In his publication *Geography*, written in the first century A.D., Strabo alludes to the notion that the Caspian Sea is a gulf that opens up to a wider body of water. Ancient geographic illustrations of this region seem to corroborate what Strabo and many other explorers believed to be true at the time. These accounts also make brief mention of oil and gas in this region as well. While serious oil and natural gas production in the Caspian region did not start until the 1800's, explorers like Marco Polo took note of the natural resources of this area. Prior to the Industrial Revolution, Caspian oil and natural gas reserves were left relatively untapped. Oil and natural gas production in the Caspian-Caucasus region only became a focal point after these fields were taken over by the Russian Czar (Croissant, Aras, 1999).

Throughout the nineteenth and twentieth centuries the Russian government, with the help of private investors from Europe and America, began to develop the necessary infrastructure needed to sustainably extract and transport Caspian resources to western markets (Croissant, Aras, 1999). Advancements in extraction methods stemming from new drilling technologies along with the development of transportation routes such as the Transcaucasian Railroad gave life to an otherwise lifeless energy market (Croissant, Aras, 1999). At the turn of the twentieth century many western oil companies were operating within the Baku region (modern day Azerbaijan) of the Caspian. When the Russian Revolution began in 1917 these gas and oil fields were privatized by the Russian government (Croissant, Aras, 1999). This move indicated that Russia was going to attempt to reduce western influence within the region at any costs. This strategy of isolating the Caspian region from the west still holds true today.

During the nineteenth and throughout most of the twentieth century the Caspian Sea was split between two nations, Iran to the south and Russia to the north. Agreements between these two nations not only demarcated territories in the Caspian but they also dealt primarily with

fishing rights and freedom of navigation in these waters. *The Treaty of Turkmenchai* (1828), *The Soviet/Persian Treaty of Friendship* (1921), and *The Treaty of Trade and Navigation* (1940) were the conventions which governed these waters before the breakup of the Soviet Union in 1991 (Croissant, Aras, 1999). During this period, while resource production was occurring, Russia was not exporting the bulk of its oil and gas from the Caspian region.

The disintegration of the Soviet Union in 1991 created three new littoral states along the east and west coasts of the Caspian Sea. Azerbaijan, Turkmenistan and Kazakhstan gained their independence after the republic's collapse. With Azerbaijan to the west of the Caspian, and Turkmenistan and Kazakhstan on its east coast, these new states now separate Russia from Iran on either side of the Caspian Sea. In light of these relatively recent developments the old bilateral agreements between Russia and Iran that governed the Caspian have become outdated. They no longer suffice to serve the interests of all the littoral states. The creation of these independent states pose a challenge to the governance of the Caspian Sea. Thus talks between these five littoral states have been taking place in order to find a new agreeable method to manage territorial divisions and natural resources within the Caspian Sea.

International Legal Regimes

The legal regime that defines the Caspian Sea will result in different outcomes for the future of hydrocarbon production and transportation throughout Central Asia and the Caucasus. The pending consequences of the governance of this region will resonate in the west as well. If it is defined as a lake, the Caspian Sea states of Turkmenistan, Azerbaijan and Kazakhstan will be unable to capitalize on their resources in full capacity due to the lack of definition that this type of ad hoc legal regime provides. Russia supports the relaxed nature of this type of legal regime because they would be able to dominate the Caspian energy sector and exert its will upon the

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weaker states. However, UNCLOS provides a governing structure that is much more concrete and would provide the weaker states the legal backing to pursue their economic interests in full capacity.

United Nations Convention on the Law of the Sea

Signed in 1982, the United Nations Convention on the Law of the Sea (UNCLOS) has provided a legal framework for the international community to adhere to while acting in the maritime realm. Generally this convention pertains to bodies of water that open up to or are a part of the larger ocean. Its purpose is to present a legal regime that delineates maritime boundaries while also setting rules and regulations for navigating and exploiting these zones. This is meant to serve as a benefit for all nations, whether they have coastal access to the sea or not. There are particular sections within UNCLOS such as zone structure, enclosed bodies of water, freedom of navigation and subsea cables and pipelines which seem to apply directly to the case of the Caspian Sea.

Enclosed & Semi-Enclosed Bodies of Water under UNCLOS

Bodies of water that are enclosed or semi-enclosed are also addressed within Part IX of UNCLOS. This section of the convention deals with seas that are surrounded by two or more nations on all sides and are encompassed entirely by these state's rightful zones. If a body of water is filled with overlapping territorial boundaries and thus has no high seas it must be managed cooperatively amongst these coastal nations. UNCLOS states that the littoral nations should coordinate in four different areas: (a) to coordinate the management, conservation, exploration and exploitation of the living resources of the sea; (b) to coordinate the implementation of their rights and duties with respect to the protection and preservation of the marine environment; c) to coordinate their scientific research policies and undertake where

appropriate joint programmes of scientific research in the area; (d) to invite, as appropriate, other interested States or international organizations to cooperate with them in furtherance of the provisions of this article (UNCLOS Part IX Article 122-123). The most recent Caspian convention in 2018 resulted in the agreement that a median line in the center of the Caspian Sea will set the outer boundaries of a littoral states EEZ.

Freedom of Navigation

Freedom of navigation is a key element of UNCLOS that preserves the right of innocent passage for ships operating under peaceful intentions to pass through a foreign nation's territorial waters and move freely about the high seas. While major players such as the United States have not yet ratified the convention, they do observe this section on freedom of navigation diligently because it is of paramount importance to their national security.

For the littoral states of the Caspian Sea the right to freedom of navigation has already been established. The treaties signed between the USSR and Iran, prior to the fall of the Soviet Union, promoted unrestricted movement within the Caspian for both nation's vessels. These rights were thus conferred to Azerbaijan, Turkmenistan and Kazakhstan upon them becoming sovereign states after the USSR's disintegration.

Even though freedom of navigation is seen by the majority of the international community as a net positive there still remains some gray areas within this concept. More specifically, nations have differences in opinion regarding the EEZ itself and whether or not a foreign nation should be allowed to operate their military within these waters. Some states in South East Asia believe that the EEZ is an extension of their territorial waters while others believe that it is an extension of the high seas (Bateman, 2017). Nations such as the United States believe the latter and view it as its right to be able to carry out military practices and operations

in foreign EEZ's (Bateman, 2017). This stretches the definition of "innocent passage" for many states party to UNCLOS. They believe that military operations do not coincide with the concept of innocent passage throughout their EEZ because they feel as though this realm falls fully under their jurisdiction (Hong, 2017). This also brings into question the definition of what constitutes a military operation. Many developing nations and those in the Asia-Pacific region have included intelligence gathering within the definition of military operations (Hong, 2017). Freedom of navigation is subjective to the region and the foreign actor which is why UNCLOS states that the passage and operation of vessels used for military purposes must take into account the rights, duties and freedoms of other nations (Bateman, 2017).

The littoral states of the Caspian Sea have made it clear that this right to freedom of navigation is reserved solely for themselves. It was unanimously agreed upon in the latest Caspian Sea convention that no foreign military passage or operations should be allowed to take place within these waters (Putz, 2018). Preventing foreign military presence in the Caspian Sea is crucial for nations such as Russia and Iran who are keen on reducing western influence of any kind in their backyard. Ultimately this decision does not mean that the west cannot find alternate ways to pursue its agendas in the region especially when states such as Azerbaijan, Turkmenistan and Kazakhstan need financing for many of their petroleum development projects.

UNCLOS Zone Structure

A coastal nation has economic rights to all ocean seabed resources that lie within its Exclusive Economic Zone (EEZ). This zone extends 200 nautical miles outward from the baseline of a nation's continental shelf. This includes all resources that lay along the nation's continental shelf as well (UNCLOS Part V). The territorial (12 nautical miles from baseline) and contiguous (24 nautical miles from baseline) zones fall inside of the EEZ. Within the territorial

zone a state has full sovereignty and can enforce domestic laws as they see fit. Contiguous zones allow states to enforce customs laws in order to prevent trafficking of drugs, migrants and weapons (UNCLOS Part II). Any water that lies beyond a nation's 200 nautical miles and does not fall within another state's jurisdiction is considered to be high seas.

Within the high seas all states have equal rights to navigation, aviation, fishing, scientific research, laying subsea cables and pipelines, and even creating artificial islands. UNCLOS states that all resources found in "The Area", a region of the seabed that lays beyond the continental shelf within the high seas, are designated for the "common heritage of mankind". This means that natural resources not contained within the boundaries of an EEZ cannot be claimed or put under the jurisdiction of any one state (UNCLOS Part XI Article 136-137). The Area's mineral resources are governed by the International Seabed Authority.

In August of 2018, at the latest Caspian convention, all five states made progress in demarcating territories. Based the concept of the UNCLOS zone structure, each country now has claim to a continental shelf and a 12 nautical mile territorial zone. Due to the fact that it is an enclosed body of water the EEZ will be set by a median line in the center of the Caspian Sea so to avoid any overlapping claims (Putz, 2018).

Subsea Cables and Pipelines

Subsea cables and pipelines are permitted under UNCLOS both on the high seas and along a coastal nation's continental shelf. All states are permitted to lay lines past the continental shelf because the deep seas are defined as a global commons. As mentioned previously no one nation has sole ownership of these waters. Subsea cables and pipelines on the high seas must be planned out in coordination with all existing infrastructure so as to not cause any interference or damage (UNCLOS Part VII Article 112). States may lay pipelines and cables within their own

territorial waters as they wish. If another nation is proposing to install a pipeline or cable within another state's territorial waters then this development is up to the discretion of the nation that claims jurisdiction over these waters. The coastal state is within its full rights to regulate the course of this infrastructure and even to implement fees associated with transportation (Mudrić, 2010).

This section of UNCLOS regarding subsea pipelines is crucial to Azerbaijan, Turkmenistan and Kazakhstan's ability to legally construct a Trans-Caspian Pipeline. This is one of the primary reasons Russia has vehemently contested labeling the Caspian a sea under UNCLOS. It is also the very reason why Europe and the United States are in support of it. This legal regime would allow for a subsea pipeline to be installed between Turkmenistan and Azerbaijan that would create an alternate east to west corridor for hydrocarbon export. Russia is determined to remain the sole pathway that eastern energy must travel through to get to the west.

The Gulf of Fonseca & Uti Possidetis Juris

The Gulf of Fonseca presents an interesting legal precedence for the case of the Caspian Sea. While this body of water is not landlocked like the Caspian, both maritime realms do share one distinct geopolitical factor. Much like the Caspian Sea, the Gulf of Fonseca is a maritime territory which has been subjected to territorial disputes due to the fall of former empires and republics culminating in the rise of newly independent states. After the Spanish Empire relinquished hold of its colonies in Central America these nations formed a unified republic which was short lived. After the disintegration of the Federal Republic of Central America these states including Nicaragua, El Salvador and Honduras became independent (Rossi, 2015). Upon these developments a decision was made by the International Court of Justice Chamber in regards to the Gulf of Fonseca. The ownership of these waters would be passed directly to the

states of Nicaragua, El Salvador and Honduras to govern unitarily, as a shared commons or condominium, meaning that the riparian states would exercise joint sovereignty over these waters (Rossi, 2015). This was unusual because the land territories were demarcated differently.

Sovereignty over land territories were assigned by the demarcation of old colonial boundaries that would be passed down to the newly independent states. However, it was determined that the Gulf of Fonseca was to be passed down to these new states under unitary sovereignty.

This decision was done under the precedence of *uti possidetis juris*, a legal term that refers to the preservation of sovereignty over both land and maritime territories for newly independent states (Rossi, 2015). Its main objective was to protect these regions from being divided up by more powerful nations during post-colonial eras. This was seen as crucial during periods of time when new states were still attempting to establish their own governments and the demarcation of territories. Essentially, this meant that within post-colonial regions, territories and their boundaries would be passed down to the new state or states as is. The land boundaries of Spain's old colonies were clearly marked and passed down to the new states. However, because Spain had no boundaries for the Gulf of Fonseca, because it fell entirely within Spain's territory, it had to be passed down to the new states as a shared commons under *uti possidetis juris* (Rossi, 2015).

In the case of the Gulf of Fonseca the legal precedence of *uti possidetis juris* and the condominium legal regime has created issues that are eerily similar to those seen within the Caspian Sea. Much like the Caspian Sea the Gulf of Fonseca is strategic for its littoral nations but also for outside nations such as the United States. This makes the Gulf attractive not only for foreign nations but for the local ones as well, which has led to disputes over territorial rights and whether or not certain littoral nations should be allowed to exploit its position and resources.

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Territorial disputes over the Gulf have prevailed since these nations gained their independence even though the International Court of Justice has ruled twice that this body of water should be governed unitarily between the three littoral states (Rossi, 2015). Consequently this makes it very difficult for development within the Gulf to occur. Without property rights this body of water will remain a constant point of contention that will impede development.

This case highlights the difficulty of managing international shared bodies of water, especially those with newly emerging independent states. The Gulf of Fonseca has characteristics comparable to those of the Caspian Sea. With no clear legal regime to govern it, the Caspian Sea is consequently experiencing similar issues thus having its potential for great economic development held hostage by bureaucracy and uncertainty.

Energy Treaty Charter

The Energy Charter Treaty, signed in 1994, was born out of the European Energy Charter of 1991. The goal of this treaty is to provide a multilateral platform by which to facilitate the efficient and mutually beneficial investment and trade of energy resources. In his article Philip Andrews-Speed states that one of the main intents of this convention is to encourage a tradeoff between European nations and former Soviet states. Ideally Europe would provide investment in energy technologies and infrastructure, and in exchange former Soviet states would supply them with alternative sources of petroleum products. Currently, the Caspian Sea nations of Azerbaijan, Turkmenistan and Kazakhstan are all member states of the Energy Treaty Charter while Russia and Iran hold observer status (Mudrić, 2010).

Europe is highly dependent on the import of petroleum products in order to service its energy needs. A large portion of these energy imports come by way of the former Soviet Union and its former republics. Europe's objective is to secure a steady and reliable flow of energy

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(gas, oil and electricity) from the regions that are able to export these products. Of course this transportation of energy is dependent on many different geopolitical factors. This convention hopes to act as a platform through which supplier states, transit states and receiving states can facilitate efficient energy trade and investment for their mutual benefits.

Under Part II of The Energy Treaty Charter it addresses energy commerce and promotes the different factors associated with it such as investment, competition and transit methods (pipelines and cables). All of these are left up to the discretion of the contracting parties, which refers to the states involved in the development of energy infrastructure, in order to promote energy access to international markets (Mudrić, 2010). Part II of the Energy Treaty Charter also asserts that nations have full jurisdiction over their “Area”, which refers to their territorial lands as well as their internal and external waters. The Charter states that a nation’s territorial waters are defined in accordance with UNCLOS. This means that the contracting parties have sovereign rights over pipelines and cables throughout their Areas (Mudrić, 2010).

We can see examples of the concepts put forth by this charter in the development of petroleum fields and pipeline projects in the Caspian Sea and its surrounding area. Turkmenistan, Kazakhstan and Azerbaijan have all agreed to Production Sharing Agreements. These contracts allow them to receive funding to explore and develop their hydrocarbon reserves, and necessary infrastructure projects such as pipelines. In return the west is able profit financially and gain security in its own energy sector.

Main Actors

Russia

The breakup of the Soviet Union has changed Russia’s outlook regarding the Caspian Sea. Before the disintegration of its states the Soviet Union viewed the Caspian as a complement

to its already vast natural gas reserves in its Siberian fields. However, they now have to share territory in this region with former Soviet states who are seeking economic liberation from them. Russia is concerned about how this will affect territories in the Caspian with crucial oil and natural gas reserves as well as the creation of a Trans-Caspian Pipeline system (Dellecker, 2008). If the Caspian is governed under UNCLOS then most of these hydrocarbon resources will fall outside of Russia's territorial boundaries and subsea pipelines from east to west will be legally allowed to be constructed. Russia will not only be unable to exploit these resources but the oil and natural gas extracted and exported from these reserves could potentially impact the amount of energy they supply to European markets (Dellecker, 2008).

Currently Russia is attempting to keep the Caspian governed as a lake under the old legal regimes based on the agreements between the former Soviet Union and Iran. This would mean that these waters, the underlying seabed and all of its resources would be held as common goods to be shared amongst all of the nations (Fallahi, 2018). The littoral states would be unable to act unilaterally in developing any oil and natural gas field or pipelines without the consent from all other parties. Effectively this would allow Russia to veto any proposed pipelines that would interfere with its ability to dominate the European energy market (Zimnitskaya & Von Geldern, 2011). This type of legal regime would also afford Russia the ability to share in a bigger portion of Caspian oil and natural gas fields, which are concentrated heavily in the southern regions outside of Russia's territorial waters.

Russia argues that because the Caspian is surrounded on all sides by land, and has no outlet to an open body of water, it should therefore not be governed under UNCLOS as a sea. They also assert that there is a legal obligation for the former Soviet states to abide by the old Caspian treaties between the Soviet Union and Iran (Lee, 2004). In 1991 all three of these newly

independent states ratified the *Alma Ata* convention. This document has a clause in it asserting that Azerbaijan, Turkmenistan and Kazakhstan must continue to respect all treaties and conventions signed by the Soviet Union (Lee, 2004).

Currently, Russia is using its political and economic clout to dominate the oil and natural gas market in this region already (Fredholm, 2005). At the moment the only way for Azerbaijan, Turkmenistan and Kazakhstan to export their hydrocarbon resources is through Russia. Russia is not only engendering this phenomenon but is capitalizing upon it as well (Dellecker, 2008). They have been controlling the market by buying oil and natural gas from these former Soviet states at a low price and then selling it to the European market at a much higher rate (Lee, 2004). Russia realizes that it has the upper hand in the Caspian region because Azerbaijan, Turkmenistan and Kazakhstan all rely upon hydrocarbon resource exportation to help prop up their economies. Russia has the ability to influence the economic status of these states solely because they are the only export route to the west (Dellecker, 2008). For example, Russia cut off purchasing natural gas from Turkmenistan in 2016. This created a crisis for Turkmenistan because they were so reliant upon selling to Russia, even if they were being forced into it at a reduced cost. This forced them to begin exporting to China (Hasanov, 2018).

Ideally Russia would like to keep any and all agreements regarding the demarcation of the Caspian Sea as flexible as possible. They would prefer to engage in bilateral and even trilateral agreements with one or two littoral states at a time rather than have a concrete multilateral convention signed by all. This would allow Russia to shape energy production in this region to its benefit. A legal regime that governs the Caspian as a lake would afford Russia the ability to make these bilateral and trilateral agreements with the three other littoral states who are

economically tied to them already, all while vetoing any development that Russia sees as a threat.

Azerbaijan

Azerbaijan gained its independence following the collapse of the Soviet Union in 1991. However, along with independence this new state inherited an economy that was negatively impacted by a lack of infrastructure. This has forced Azerbaijan to pin any hopes of economic recovery on its ability produce and export oil and natural gas (Altundeger, 2007). The majority of Azerbaijan's oil and natural gas fields lie offshore of Baku, the country's capital. Currently they have proven reserves of 5.4 billion barrels of oil in the Azeri-Chirag-Gunashli (ACG) field (Azeri-Chirag-Gunashli, 2018) and 1.3 trillion cubic meters of natural gas in the Shah Deniz field ("Azerbaijan Overview, 2018). President Ilham Aliyev stated earlier this year that Azerbaijan had enough proven natural gas reserves to last them for another century (Israfilbayova, 2018).

While the proven hydrocarbon reserves may exist for Azerbaijan, the means by which to export them are complicated due to the fact that they are landlocked. As a result Azerbaijan has partnered with private firms and other states to construct essential oil and natural gas pipelines that have the capacity to transport the flow of these hydrocarbons from the Baku region through to the Black Sea or the Mediterranean. The Baku-Tbilisi-Ceyhan Oil Pipeline (BTC) runs from Baku through Georgia, into Turkey's coastal city of Ceyhan and then into the Mediterranean (Altundeger, 2007). The Baku-Tbilisi-Erzurum Gas (BTE) pipeline follows essentially the same route into Turkey as the BTC except it stops in Erzurum (Altundeger, 2007). The Baku-Supsa Oil Pipeline travels from Baku through to the Georgian city of Supsa on the coast of the Black

Sea. Finally the Baku–Novorossiysk Oil Pipeline flows northwest from Baku directly into Novorossiysk Russia on the Black Sea (Altundeger, 2007).

Unfortunately for Azerbaijan the viability of some of its pipelines are in constant jeopardy as they run within close proximity to unstable regions. Tensions are still high between Azerbaijan and its neighbors Armenia regarding the deadly Nagorno-Karabakh conflict which lasted six years, from 1988 – 1994 (Coffey & Nifti, 2018). The Baku-Tbilisi-Ceyhan Oil Pipeline and the Baku-Tbilisi-Erzurum Gas Pipeline both run through an extremely narrow passageway that is 60 miles wide. This route known as the Ganja Gap is just to the north of territory gained by Armenia during the Nagorno-Karabakh conflict (Coffey & Nifti, 2018). Due to the fact that Russia has supplied arms to Armenia during this conflict they still hold a significant level of influence within this state. Azerbaijan has concerns that this conflict could be spurred again inadvertently by Russia as a last ditch effort to disrupt the flow of oil and natural gas through this region (Coffey & Nifti, 2018).

Azerbaijan has been the most aggressive out of any of the three former Soviet Republics in the Caspian Sea region in its pursuit of exporting oil and natural gas. They have on occasion acted unilaterally within the Caspian Sea which has not gone over well with its neighbors. For example, in 2001 military tensions between Azerbaijan, Iran and Turkmenistan rose due to the fact that Azerbaijan had begun the process of developing gas fields in a region of the Caspian Sea that was still contested (Shlapentokh, 2013). Since that time, the Caspian convention of 2018 has set boundaries that put the Shah Deniz and Sardar-e Jangal fields within Azerbaijan's territory.

Azerbaijan has held steadfast in its position that the Caspian Sea should be governed under a legal regime such as UNCLOS. This would provide a basis for territorial divisions of the

body of water and its seabed. If this were to be the case, Azerbaijan would stand to solidify its inheritance of a large portion of the offshore oil and natural gas fields in the southern part of the Caspian Sea. This would also make it much easier for them to greenlight the proposed Trans-Caspian Pipeline that would connect Turkmen natural gas to the Baku- Tbilisi-Erzurum Gas pipeline via an underwater Caspian pipeline. If the Trans-Caspian Pipeline is approved under this type of legal regime then it will set a precedent for various other proposed pipelines throughout the region that are currently being stifled by uncertainty.

Russia has done everything in its power to veto this development by asserting that all activities within the Caspian Sea must respect the old legal regimes. However, Azerbaijan refutes Russia's claim stating that there are no international conventions which define laws regarding the status of lakes shared by different states (Lee, 2004). There only exist other case studies of legal regimes for bodies of water in this position. Each of these legal regimes were individually tailored to the circumstance. According to Azerbaijan they believe that the old conventions that governed the Caspian between the Soviet Union and Iran are no longer applicable because they primarily deal with fishing rights and freedom of navigation (Lee, 2004). These conventions do not specify the management of natural resources along the seabed of the Caspian. In addition to these previous arguments Azerbaijan also notes that the Soviet Union had in fact acted unilaterally itself in dividing the Caspian Sea region into four different sections without consulting Iran, the only other littoral state during this period (Lee, 2004).

It is abundantly clear that Azerbaijan is leveraging its economic independence and success upon its ability to operate to its full capacity within the Caspian Sea. The successful development of oil and gas fields along with associated infrastructure such as pipelines are crucial to Azerbaijan's ability to achieve its goals. Negotiating terms of a Caspian legal regime

that falls in Azerbaijan's favor will provide the basis for them to further distance themselves economically from Russia. If they are unable to achieve this then Azerbaijan's entire oil and natural gas production will continue to be at the mercy of Russia.

Kazakhstan

Much like Azerbaijan, Kazakhstan's economic success also is reliant upon its ability to capitalize on its hydrocarbon energy reserves. Currently they also are at the mercy of Russia when it comes to the export of oil and natural gas. As of 2014 Kazakhstan has proven natural gas reserves of approximately 1.5 trillion cubic meters ("Gas in Kazakhstan", 2014) and oil reserves estimated at 1.2 billion tons in its onshore field of Karachganak (Jafarova, 2014). They also fall within the top fifteen countries with the most oil reserves. Holding three percent of the world's oil and boasting 172 oil fields they are estimated to have approximately thirty billion barrels of oil in proven reserves (Vakulchuk & Overland, 2017).

Kazakhstan is estimated to have even greater amounts of oil and natural gas reserves offshore in the Caspian Sea in its Kashagan oil field (Kosolapova, 2018). For this reason they are adamant about preserving its maritime territory and are choosing to side with Azerbaijan and Turkmenistan in this dispute. As of now Kazakhstan's export potential is extremely limited. They are at the whim of Russia and its monopoly on the energy market throughout Central Asia and Europe. Kazakhstan's only export route to the west is through the Central Asia-Center pipeline in Russia (Yenikeyeff, 2008). Kazakhstan is forced to export its natural gas to Russia at a discounted rate or to China. If Kazakhstan is able to retain sovereignty over its territories within the Caspian Sea then it will be able to increase its independence in regards to its energy sector. The Caspian offers an alternative way for Kazakhstan's petroleum to flow in to western markets via Azerbaijan, bypassing Russia and diversifying its consumer base. Kazakhstan will be

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afforded an entirely new market and at the same time they will be able to move away from being forced to sell its petroleum at a reduced rate to its neighbor in the north. This would be a symbiotic relationship for both Europe and Kazakhstan in the sense that they will gain a higher level of security within their respective energy sectors.

Turkmenistan

It is estimated that Turkmenistan is holding approximately 50.4 trillion cubic meters of natural gas and around 71.2 billion tons of oil located in both offshore and onshore fields. Turkmenistan's onshore field reserves are greater than its projected offshore reserves (Aliyeva, 2017). The majority of its reserves are located in the onshore Galkynysh field which accounts for 74 percent of the nation's proven reserves. It sits in the southeastern part of Turkmenistan (Mammadov, 2015). Currently, Turkmenistan has nineteen oil fields and sixty-five natural gas fields (Aliyeva, 2017). Its main export partner is China who they export natural gas to via the Central Asia-China Gas Pipeline.

Turkmenistan is in a similar position as Kazakhstan. They are also land locked on the eastern side of the Caspian Sea and have an economy that is completely reliant on exporting substantial quantities of petroleum. Without Trans-Caspian pipeline to connect its oil and natural gas to Azerbaijan they are isolated and must look to export to either China in the east, Russia in the north or Iran to the south. In 2016 Turkmenistan and Russia became embroiled in a series of disputes over the pricing and supply of Turkmenistan's natural gas. As a result Russia ceased the purchase and imports of Turkmen natural gas via the Central Asia-Center Gas Pipeline (Hasanov, 2018). Due to the fact that Russia was responsible for importing the bulk of its natural gas this move was a major blow to Turkmenistan who already had a struggling economy. To its benefit China stepped in to fill this void. Turkmenistan does send petroleum south into Iran but

the capacity of those exports is miniscule compared to the 184 billion cubic meters they sent to China at the end of 2017 (Hasanov, 2018).

Being blessed with vast hydrocarbon reserves, but cursed with limited options to export them puts Turkmenistan in a difficult position. Turkmenistan's soured relations with Russia and Iran have greatly reduced its options as well. Even if they do resume exporting to Russia, Turkmenistan will still be at its mercy regarding pricing and supply just like before. Turkmenistan needs a Trans-Caspian Pipeline capable of connecting them to the west. In order for them to achieve this they must be able to retain sovereign rights over its portion of the Caspian Sea. Article 14 of UNCLOS explicitly protects the states right to develop underwater cables and pipeline freely throughout its territorial waters. This would allow Turkmenistan to fully explore its offshore oil and gas fields and develop subsea pipelines. Without a legal regime such as UNCLOS governing the Caspian Sea this resource wealthy nation will not be able to efficiently capitalize on its hydrocarbon reserves.

Iran

Prior to the collapse of the Soviet Union, Iran shared the Caspian Sea with the USSR evenly. However, now that there are three new states that share borders with the Caspian Sea Iran's fifty percent stake has been greatly reduced (Dudley, 2018). The most recent Caspian convention in August of this year seems to have reduced Iran's ability to claim maritime territory even more. Due to the fact that Iran has the smallest amount of Caspian coastline the deal minimized Iran's share down to less than thirteen percent (Dudley, 2018). The Iranian public and its president Rouhani have differing views on this new deal. Critics state that this new deal is indicative of Iran ceding to Russia and the other Caspian states. However, President Rouhani has publicly stated that the security this agreement affords Iran from foreign military presence in the

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region is more valuable than lost maritime territory (Esfandiari, 2018). It is believed that in 1996, during one of the first conventions, Iran voluntarily offered to reduce its fifty percent stake in the Caspian down to twenty percent in order to gain influence and establish positive diplomatic relations with the newly independent states (Taghvaei, 2018).

In reality, when Iran did claim 20 percent of the Caspian Sea the only notable gas field that fell within its territory was the Sardar-e Jangal gas field which holds 50 billion cubic meters of natural gas and 2 billion barrels of oil (Kalehsar, 2018). Following a memorandum of understanding Iran and Azerbaijan have agreed to cooperate in the development of this field. However, this agreement would only afford Iran 500 billion barrels of oil (Kalehsar, 2018).

Iran realizes that investing its time and funds in extracting petroleum from the Persian Gulf is a far more profitable endeavor. As of now there are no substantial offshore oil and gas fields for Iran to explore in its territory of the Caspian Sea. Iran does not want the Caspian Sea to be governed by a legal regime that follows UNCLOS provisions because they will play a miniscule role in exploiting the sea's resources.

The West: Europe and the United States

The European Union has been extremely vocal about diversifying its sources of imported petroleum products in order to increase security within its energy sector. However, due to the monopoly that Russia has on pipelines flowing from east to west, Europe is finding it extremely difficult to find alternative sources for natural gas. Gazprom, Russia's state owned gas producer, reports that in 2017 they exported 192.2 trillion cubic meters of natural gas to European countries, a higher volume than any previous year ("Gas Supplies to Europe", 2018). Interestingly enough the nations who are the most outspoken about reducing their dependence on Russia are the same nations who are receiving the majority of imported natural gas from

Gazprom. According to Gazprom in 2017 Western European countries, NATO allies, represented almost 81 percent of the company's imports into Europe from Russia, while central and eastern states only imported around 19 percent ("Gas Supplies to Europe", 2018). Germany alone received 53.4 trillion cubic meters of natural gas from Gazprom ("Gas Supplies to Europe", 2018). Subsequently, Gazprom has a heavy influence over the Nord Stream pipeline that is responsible for most of the petroleum being imported into Europe via Russia. A proposed sequel to this pipeline, the Nord Stream Two, would essentially be a nail in the coffin for Europe's hopes of diversifying its energy supply.

This is a problem for both the western nations like those in Europe and the United States who are attempting to minimize Russia's monopoly over energy markets in Eurasia. Subsequently, the United States is also making it difficult for Europe to import petroleum from alternative sources such as Iran. The revived sanctions against the regime in Iran by the United States have impacted Europe's ability to import petroleum from them (Geranmayeh, 2018). As a result they are limited in the petroleum sources they have available to them. Unfortunately, the United States has not developed sufficient enough infrastructure to export the volumes of natural gas to Europe that would allow it to wean its way off of Russian natural gas (Geranmayeh, 2018). With Iran and the United States, two major petroleum producers, removed from the equation this allows Russia to dominate the European energy market.

Proposed pipelines such as the Trans-Caspian Pipeline would present them with a tremendous alternative source of natural gas and oil by connecting them to the Central Asian energy market. However, in the most recent Caspian Sea talks it was it was unanimously agreed upon that no foreign militaries would be allowed to operate within this region. This means that European and the United States militaries have no operational capacity within these waters even

if they were asked for support. The only way for Europe and the United States to pursue their long term goals in this region is through financing the development of the Caspian energy sector.

Western Influence & Petroleum Infrastructure

Western institutions and private companies play a critical role in funding petroleum infrastructure projects if they view them as a net benefit to their agendas. There are underlying motivations for these institutions to finance projects such as the Baku-Tbilisi-Ceyhan Oil Pipeline and the Baku-Tbilisi-Erzurum Gas Pipeline. When projects receive funding from groups such as the International Finance Corporation (IFC) and the European Bank for Reconstruction and Development (EBRD), conditions are pinned to them that promote liberalizing trade and investment as well as the deregulation and privatization of industries (Bretton Woods Project, 2005). Bretton Woods institutions such as the IFC and the World Bank Group are often criticized for forcing the agendas of developed western nations through these conditions. Countries such as the United States, France and Germany hold some of the largest shares of voting power in the World Bank (World Bank Group, 2010). Thus when a project like the Baku-Tbilisi-Ezurum Gas Pipeline is proposed these groups are ready to fund them because they see the potential it has to provide the west with an alternative source of natural gas.

However, these projects usually represent a symbiotic relationship between the west and countries in the Caspian region whose economies rely heavily upon their ability to export hydrocarbon resources at a high capacity. This is especially true for Turkmenistan and Kazakhstan who are desperately looking to find ways to export their oil and gas to the west without having to go through Russia. The U.S. Trade and Development Agency even funded a \$1.7 million feasibility study on the possibility of constructing a Trans-Caspian Pipeline as early on as 1998 (Kalicki, 1998). If the United States and Europe wish to capitalize on hydrocarbon

resources in the Caspian Sea they have no choice but to do so through finding ways to inadvertently fund petroleum infrastructure projects such as pipelines that export westward and bypass Russia.

Security Concerns/International Terrorism

A result of the Soviet Union collapsing was the sudden creation of newly independent states that now have the responsibility of governing over different ethnic groups many of whom are constantly on the verge of conflict. During the reign of the USSR boundaries were changed and different ethnic groups were moved. Despite this, nationalist uprisings and terrorist organizations were managed fairly well due to the ruthless nature of the USSR government. The absence of this iron fist has left room for conflicts between states and ethnic groups that are fueled by nationalist sentiments over everything from rightful claims to territory or representation in their nation's government. This instability presents a challenge for states and private companies that wish to develop pipelines throughout Central Asia and the Caucasus. There may be no clear cut solution to these conflicts but securing these pipelines is vital to nations that are exporting and importing hydrocarbon resources from the Caspian Sea.

South Ossetia Conflict

Tensions between Georgia and Russia over the republic of South Ossetia. Technically this region is located in northern Georgia. South Ossetia is officially recognized as its own state internationally but not by Georgia (Welt, 2005). Tensions between Georgia and the Ossetians date back to the early years of the USSR. When Georgia declared its independence after the Russian revolution they began to clash with separatists in South Ossetia who were backed by the USSR (Welt, 2005). South Ossetia became an autonomous region within Georgia. The South Ossetians stated in 1991 that it was their plan to separate from Georgia and rejoin the North

Ossetia region that falls within Russian territory (Welt, 2005). War ensued which resulted in approximately 2,000 deaths and hundreds of thousands of people escaping from Georgia and South Ossetia. Even though this was a relatively short war and a ceasefire was brokered in 1992 there was no agreement made regarding the status of this territory (Welt, 2005). It still remains within Georgia. In 2008 war broke out again. During this most recent clash Russia took control over a 1.5 km section of the Baku-Supsa Pipeline which runs through South Ossetia (Sudakov, 2017).

The Nagorno-Karabakh Conflict

Nagorno-Karabakh is a region within the boundaries of Azerbaijan that is under the control of the Armenian military. The origin of this disputed area dates back to 1920 when the USSR designated this area as an autonomous region with a ninety-five percent Armenian population (“Nagorno-Karabakh Conflict”, 2018). Conflicts over this region have become frequent ever since the breakup of the Soviet Union. This Nagorno-Karabakh government passed legislation in 1988 stating that they wished to become a part of Armenia. In 1991, when the Soviet Union finally collapsed, war could no longer be contained. This conflict resulted in approximately 30,000 casualties and led to the region falling under the military control of Armenia who held approximately fourteen percent of the Azerbaijan’s territory (“Nagorno-Karabakh Conflict”, 2018). With the help of Russian mediation a ceasefire was reached in 1994 but tensions resurfaced again in 2016. U.S. Ambassador Perina was the Special Negotiator for Eurasian Conflicts called in to help negotiate an end to the conflict. However, he has stated that he was pessimistic about finding a peaceful solution (“Nagorno-Karabakh Conflict”, 2018).

Stabilizing the region is the most pressing matter in order to secure vital infrastructure such as pipelines. Armenia’s occupation of the Nagorno-Karabakh region in Azerbaijan has left a

relatively small gap for pipelines to pass through on to the west. This sixty mile wide gap is known as the Ganja Gap. Named after the Azeri city of Ganja this pathway is really the only region in Azerbaijan that can securely house these pipelines (Coffey & Nifti, 2018). It would make sense for countries who are interested in seeing petroleum be successfully exported to the west from Central Asia and the Caspian region to invest in the security of this unstable area. Russia has an interest in seeing this conflict resume because it could disrupt the Baku-Tbilisi-Ceyhan Pipeline and the Baku-Tbilisi-Ezurum Pipeline. 25,000 Armenian backed troops are stationed in the Nagorno-Karabakh region and Russia still has a military base there as well (Mayr, 2006). If Azerbaijan is to be used as the gateway for Caspian hydrocarbon to reach the west then this region needs a strong military presence here in order to deter conflict. The United States and Europe should look into lending military support to Azerbaijan in order to protect these important pipeline and future ones. This would not violate the most recent Caspian convention because its provisions only state that foreign military presence is forbidden in the Caspian Sea.

Pipelines (Active and Proposed)

The geographical position and topography of nations in Central Asia / Caucasus region limit the means by which petroleum can be exported from the Caspian Sea. Each one of the Caspian Sea littoral states are landlocked nations surrounded by mountainous terrain. The most viable mode of transporting petroleum in any direction is via pipelines. These pipeline projects transcend national boundaries and thus require cooperation between multiple nations and private companies in order to finance and develop them. Operating these projects are a complex task where multinational corporations, such as British Petroleum, and Chevron cooperate with nationalized petroleum companies, such as Transneft, Gazprom and SOCAR Midstream in order

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to successfully construct and manage pipelines. Security is also a major concern for the corporations and states who are heavily invested in these pipelines because most of the infrastructure is developed in regions with varying levels of stability.

Currently, there are seven vital pipelines that the Caspian states rely upon to export their hydrocarbon resources. The Baku-Tbilisi-Ceyhan Pipeline, Baku-Supsa Pipeline, Baku-Novorossiysk Pipeline and the Caspian Pipeline Consortium are the four main oil pipelines responsible for exporting the bulk of crude oil in the Caspian region. The Baku-Tbilisi-Ezurum Pipeline, Central Asia-Center Pipeline and the Central Asia-China Pipeline are the main lines used to export natural gas from the area. In addition to the existing operational pipelines there is one that has not been constructed yet. The Trans-Caspian Gas Pipeline is a concept that should be mentioned because of the possibilities it could bring to the energy sector in the Caspian region.



Figure 1: The Trans/Caspian gas pipeline would run under the Caspian Sea from Türkmenbaşy to the Sangachal Terminal, where it would connect with the existing pipeline to Erzurum in Turkey, which in turn would be connected to the Southern Gas Corridor, thus taking natural gas

from Turkmenistan to Central Europe. Blomberg, T. (2018). Trans-Caspian Gas Pipeline. In *Wikipedia*. Retrieved from https://en.wikipedia.org/w/index.php?title=Trans-Caspian_Gas_Pipeline&oldid=869368118

Baku-Tbilisi-Ceyhan Pipeline (BTC)

This project originally began back in November of 1999. At an OSCE (Organization for Security and Co-operation in Europe) convention in Istanbul the presidents of Azerbaijan, Turkey and Georgia all signed an agreement promoting the flow of crude oil via pipeline throughout their territories (“Baku Tbilisi Ceyhan”, 2017). The Baku-Tbilisi-Ceyhan Pipeline is the longest of the three major pipelines that originate in the Baku region within Azerbaijan. Running through Azerbaijan, Georgia and Turkey this pipeline spans a total of 1,768 km long (“Baku Tbilisi Ceyhan”, 2017). 443 km run through Azerbaijan, 249 km through Georgia and 1,076 km through Turkey. It connects the Sangachal terminal in the Caspian Sea to Ceyhan on the coast of the Mediterranean Sea (“Baku-Tbilisi-Ceyhan pipeline”, 2018).

The Baku-Tbilisi-Ceyhan Pipeline transports crude oil from the Azeri-Chirag-Gunashli deepwater oil field, which is 120 km off the coast of Azerbaijan. Currently this pipeline has transported approximately 1.2 million barrels of crude oil per day since 2009 (“Baku-Tbilisi-Ceyhan pipeline”, 2018). Since opening in 2006, this pipeline is responsible for exporting 2.99 billion barrels of crude oil to global markets. The Baku-Tbilisi-Ceyhan Pipeline has transported around 1.25 million barrels so far in 2018 alone (“Baku-Tbilisi-Ceyhan pipeline”, 2018). Once the oil reaches the Ceyhan port it is carried via tanker to buyers all of the globe.

The partners that own the majority of this project are British Petroleum with a 30.1 percent stake and SOCAR with a 25 percent stake. The other petroleum corporations partnered in the BTC pipeline are Chevron, Statoil, TPAO, Total, ENI, Itochu, ExxonMobil, Inpex and ONGC (“Baku Tbilisi Ceyhan”, 2017). Funding for the BTC Pipeline came via third party

groups which were responsible for financing approximately 70 percent of this project in the form of loans, export credits and insuring risk. The two major financiers were the European Bank for Reconstruction and Development (EBRD) and the International Finance Corporation (IFC), which is the private sector branch of the World Bank Group. Together these two groups put up a total of \$2.6 billion (International Finance Corporation IFC, 2006).

Baku-Tbilisi-Ezurum Pipeline (BTE)

Also known as the South Caucasus Pipeline, the Baku-Tbilisi-Ezurum Pipeline project was completed in 2006 in conjunction with the BTC Oil Pipeline (“South Caucasus pipeline”, 2018). The South Caucasus Pipeline is one of the major gas lines emanating from the Caspian region. It exports natural gas from the Shah Deniz field, one of the largest natural gas deposits in the Caspian Sea, located 70 km southeast of Azerbaijan's coastal capital of Baku (“South Caucasus pipeline”, 2018). It travels alongside the same route as the BTC pipeline. However, instead of traveling all the way through to Ceyhan it only goes halfway through Turkey to the Ezurum region. From here it joins up with Turkey’s gas distribution system (“South Caucasus pipeline”, 2018).

This pipeline is estimated to have the capacity to pump up to 25 billion cubic meters of natural gas per day. During the first six months of 2018 the BTE has exported approximately 21 million cubic meters (“South Caucasus pipeline”, 2018). Currently the pipeline is 42 inches in diameter but is being expanded in order for it to have the capacity to handle the new Shah Deniz Stage Two project. This new development is expected to be able to transport an additional 16 billion cubic meters of natural gas per year through the BTE Pipeline (“South Caucasus pipeline”, 2018).

The BTE feeds into the Southern Gas Corridor connecting Caspian petroleum to Europe. This is a vital component to the energy security of Europe which needs to diversify its sources for natural gas. The BTE was built in conjunction with the BTC to reduce its impacts on the surrounding environments (“South Caucasus pipeline”, 2018). The funding was put up by the same groups as the BTC. Construction and management of this pipeline is undertaken by the South Caucasus Pipeline Company, BP and SOCAR Midstream, which is Azerbaijan’s national petroleum company (“South Caucasus pipeline”, 2018).

Baku-Supsa

The Baku-Supsa Oil Pipeline became operational in 1999 and exports petroleum from the Sangachal Terminal in Azerbaijan to the Supsa terminal in Georgia (“Baku-Supsa Western Export Pipeline, 2018”). Much like the Baku-Novorossiysk Pipeline this pipeline connects the Azeri petroleum from the Azeri-Chirag-Gunashli deepwater oil field to the Black Sea. However the Baku-Supsa Pipeline bypasses Russia entirely. Instead this 830 km pipeline runs through Georgia, just south of the Baku-Novorossiysk pipeline. Unlike the three other pipelines that run out of the Sangachal Terminal, the Baku-Supsa Pipeline is operated entirely by BP (“Western Route Export Pipeline (WREP)”, 2018).

The pipeline cost a total of \$556 million. Due to the fact that the Baku-Supsa Pipeline is a renovation of an older pipeline from the Soviet era much of the construction dealt with upgrading already existing infrastructure (“Supsa Terminal and Pipeline, Georgia”, n.d.). However, new pumping and pressure reduction stations were installed in western Georgia as well as storage tanks in the Supsa terminal which has the capacity to hold 160,000 cubic meters. The Baku-Supsa Pipeline has the capacity to export approximately 220,000 barrels of crude oil per day (“Supsa Terminal and Pipeline, Georgia”, n.d.). Even though there has been propositions to

upgrade this line so that it may export between 300,000 to 600,000 barrels per day it still has nowhere near the same exporting capacity as the BTC Pipeline. When the BTC Pipeline was closed in 2008 its oil had to be diverted via both the Baku-Supsa and the Baku-Novorossiysk Pipelines in order to maintain the flow of Azeri crude oil.

Much like the BTC and BTE Pipelines, the Baku-Supsa Pipeline also runs through a region that is constantly on the verge of instability. The South Ossetia region lies directly in the path of the Baku-Supsa Pipeline. In 2008, when Georgia went to war with Russia, the South Ossetia conflict broke out thus causing BP to shut down the Baku-Supsa Pipeline temporarily (Sudakov, 2017). Russian aggression and separatists in this region have raised concerns about whether or not the pipeline should be redirected. Even though SOCAR states that there is no immediate threat in the near future that would prompt this to occur it is clear that Russia is attempting to leverage its influence in South Ossetia as demonstrated in 2015 when they set up a de facto border establishing the region as a republic (Sudakov, 2017). Disruption to the Baku-Supsa pipeline is not necessarily a critical blow to the transport of Azeri oil because of its limited capacity. However, it does serve as a vital alternative for the BTC Pipeline. Also, because the BTC does bypasses Russia, it reduces Russia's leverage on Azeri crude oil exports.

Baku–Novorossiysk Pipeline

The Baku-Novorossiysk Pipeline, also known as the Northern Route Export Pipeline, connects crude oil from the Azeri-Chirag-Gunashli deepwater oil field to the Black Sea via Russia. The pipeline begins at the same terminal as the BTE and BTC pipelines in Sangachal. From here it runs 1,330 km through Azerbaijan and Russia before reaching the Novorossiysk terminal located on the eastern coast of the Black Sea (“Baku-Novorossiysk Oil Pipeline”, 2018). Just like the BTE and BTC pipelines the Azeri portion of the Baku-Novorossiysk Pipeline is

operated by SOCAR Midstream (“Baku-Novorossiysk Oil Pipeline”, 2018). The segment that runs through Russia is managed by Transneft, the state owned petroleum company. In 2008 this pipeline saw an increased flow of oil due to instability in Turkey which briefly disabled the BTC pipeline (McElroy, 2008). While this pipeline does remain operational and has the capacity to transport 105 thousand barrels of crude oil per day, its throughput of oil is not exactly high (“Baku-Novorossiysk Oil Pipeline”, 2018). SOCAR is diverting most of its crude oil through the BTC or Baku-Supsa Pipelines. In 2012 the majority of oil exported from the Azeri-Chirag-Gunashli deepwater oil field was transferred through pipelines that bypassed Russia completely. Out of 25 million tons of oil exported by SOCAR only two million tons were sent via the Baku-Novorossiysk Pipeline (Dadashova, 2013).

Caspian Pipeline Consortium

The Caspian Pipeline Consortium is Kazakhstan’s main oil pipeline that connects the vast resources of the Tengiz oil field to the Russian port city of Novorossiysk on the Black Sea (Krug, 2001). Ultimately this is Kazakhstan’s only pipeline that has the ability to export a substantial amount of its oil to western markets. Commissioned in 2001 this line spans 1,510 km and has the capacity to transport 35 million tons of crude oil annually (“General Information”, n.d.). Future upgrades to the Caspian Pipeline Consortium are expected to boost the throughput of Kazakh crude oil up to 67 million tons annually (Dellecker, 2008). This expansion is predicted to bring in approximately \$2.3 billion dollars in revenue per year (“General Information”, n.d.). The Caspian Pipeline Consortium is the only oil export pipeline running through Russia that is not entirely owned by Transneft, Russia’s state owned oil company. When this project was first proposed in 1992 Russia, Kazakhstan and Oman were the three initial investors. However, additional financing was needed which resulted in the three countries agreeing to allow private

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oil companies to become shareholders (Dellecker, 2008). Ownership of the Caspian Pipeline Consortium was evenly split with 50 percent of the equity being exchanged to major oil companies. Kazakhstan owns 19 percent of the pipeline. Russia gave up its initial 24 percent stake to Transneft in 2007 (Dellecker, 2008). In 2008 Oman withdrew from the consortium and sold its seven percent stake to Transneft for \$700 million (Watkins, 2008). The remaining 50 percent is divided up between private oil companies such as Chevron, LukArco, Rosneft-Shell, Mobil, Agip International, British Gas Overseas Holding Ltd., Kazakhstan Pipeline Ventures LLC and Oryx Caspian Pipeline LLC (Dellecker, 2008). The Caspian Pipeline Consortium is unique because this shared equity between private companies and states. However, holding true to form, Russia is trying to tip the equilibrium of this vital pipeline in its favor by attempting to influence the private shareholders such as LukOil in order to gain a higher share percentage in pipeline.

Central Asia-Center Gas Pipeline

The Central Asia-Center Gas Pipeline is made up of five separate lines that run from Turkmenistan in to Russia. Lines CAC 1, 2, 3 and 5 all run through Uzbekistan and account for the majority of the pipeline's overall capacity (Fredholm, 2005). CAC 4 is the only line that travels through Kazakhstan. This pipeline system was controlled entirely by Gazprom and was constructed over the series of a couple decades. Its infrastructure development began in 1960 and continued through until 1987 when line 5 was commissioned (Fredholm, 2005). In its early years this the Central Asia-Center Pipeline had varying export capacities between 90 billion cubic meters and at times 120 billion cubic meters (Fredholm, 2005). More recently its capacity had dwindled down to less than 47 billion cubic meters in 2008 (Yenikeyeff, 2008). While the Central Asia-Center Pipeline infrastructure is still in place it is in need of renovation.

Russia decided to reduce its import of natural gas from Turkmenistan by almost 6 billion cubic meters in 2015 (Hasanov, 2018). In 2016 disputes over pricing and supply between Russia and Turkmenistan caused Russia to discontinue purchasing natural gas from Turkmenistan (Hasanov, 2018). Consequently China has become Turkmenistan's biggest client since this move, replacing Russia. Gazprom has recently stated that they are working to resume imports from Turkmenistan via the Central Asia-Center Pipeline system as early as 2019 ("Gazprom: Russia to Start Importing Gas from Turkmenistan Again Next Year", 2018). Turkmenistan's cheap exports of natural gas were vital to Russia's long term strategy of leveraging its position in the energy market over Europe. The Central Asia-Center Pipeline system is a crucial vessel that connects relatively cheap natural gas to Russia which can then be sold to European countries at a higher price. Resuming a steady gas flow will benefit both Russia and Turkmenistan. Resuming this relationship would give Russia yet another source to import cheap natural gas from, consequently bolstering its monopoly over the European energy market. Now that Turkmenistan has a solid alternate export destination in China, it could begin to export natural gas in two directions. This would allow Turkmenistan to have some flexibility in regards to the amount that it needs to supply in order to prop up its economy.

Central Asia-China Gas Pipeline

The Central Asia-China Pipeline connects Turkmen natural gas to China. It begins in Gedaim, a city on the border of Turkmenistan and Kazakhstan and runs 3,666 km before reaching its final destination in Xingjiang China. The pipeline is currently comprised of three different lines. Lines A, B and C all run parallel with each other through Uzbekistan and Kazakhstan. Each of these lines were commissioned at different times, the last one being line C which was completed in 2015. Lines A and B are identical in their measurements and have the

capacity to transport 15 billion cubic meters of natural gas each annually. Line C however has the greatest exporting capacity at 25 billion cubic meters per year (Pannier, 2017). As of 2017 194.5 billion cubic meters of natural gas has been transported to China via the Central Asia-China Gas Pipeline (“China's CNPC imports first gas from Kazakhstan ahead of winter”, 2017).

Both China and Turkmenistan are heavily invested in this pipeline. China’s demand for natural gas has risen sharply in a relatively short period of time. Their consumption has gone from 47 billion cubic meters in 2005 to 200 billion cubic meters in 2016 (Hove, 2017). China’s demand rose 15 percent in the first half of 2017 from the prior year. While they do produce natural gas domestically China relies mostly upon imports (Hove, 2017). In 2006 the China National Petroleum Corporation signed a thirty year deal with Turkmenistan which secured a steady flow of Turkmen natural gas to China (“Central Asia-China Gas Pipeline, Turkmenistan to China”, n.d.). This works out well for Turkmenistan which has yet to diversify its economy and is currently experiencing its worst economic crisis since it became independent. Turkmenistan is heavily dependent upon its ability to export the country’s vast hydrocarbon resources.

Trans-Caspian Gas Pipeline

The Trans-Caspian Gas Pipeline would be a subsea pipeline running 300 km from the city of Turkmenbasy, which sits on Turkmenistan's western coast, through the Caspian Sea and connect with Baku-Tbilisi-Ezurum Gas Pipeline located in Baku Azerbaijan (Hasanov, 2018). Originally this project was proposed by the United States in 1996. Both the United States and Turkmen governments have conducted research looking into the practicality of this pipeline. It was estimated that this proposed project would cost approximately \$2.5 billion dollars (Dade, 1999). It would have the capacity to export 30 billion cubic meters of gas per year (Socor, 2006).

The Trans-Caspian Gas Pipeline could play a crucial role in creating an “East-West Corridor”. It has the possibility to connect natural gas from states on the east of the Caspian Sea such as Kazakhstan and Turkmenistan to the greater Southern Gas Corridor which transports gas into Europe via Turkey. The Caspian Pipeline Consortium, Central Asia-China Gas Pipeline and the Central Asia Center Gas Pipeline all provide examples of the difficult position that Turkmenistan and Kazakhstan are in. These states are forced to look either to the north or to the east in order to find a partner to export natural gas or crude oil to in substantial quantities.

This chokehold is to the detriment of the European energy market as well because it is dominated by Russia. Russia objects to this project because they realize that the Trans-Caspian Gas Pipeline would be pivotal in setting a precedent for the future of hydrocarbon resource exports from east to west, no longer held hostage by Russia. The dispute over the Caspian Sea legal regime is closely related to the Trans-Caspian Pipeline proposal. If the Caspian Sea is demarcated in accordance with UNCLOS legal provisions then Russia and Iran would not have any grounds to prevent the construction of any subsea pipelines. Ultimately the Trans-Caspian Pipeline represents a new age of liberalization for the energy sector in Central Asia as well as the diversification of energy suppliers for Europe.

Major Oil & Gas Fields (Offshore)

The Caspian Sea contains five main oil and gas fields which contain the bulk of its hydrocarbon reserves. The Azeri-Chirag-Guneshli, Shah Deniz and Sardar-e Jangal fields are all in the southern Caspian basin where the salinity is high and the depths are much greater. The Korchagin field and the Kashagan field are located in the northern region where the salinity is minimal and the depths much more shallow.

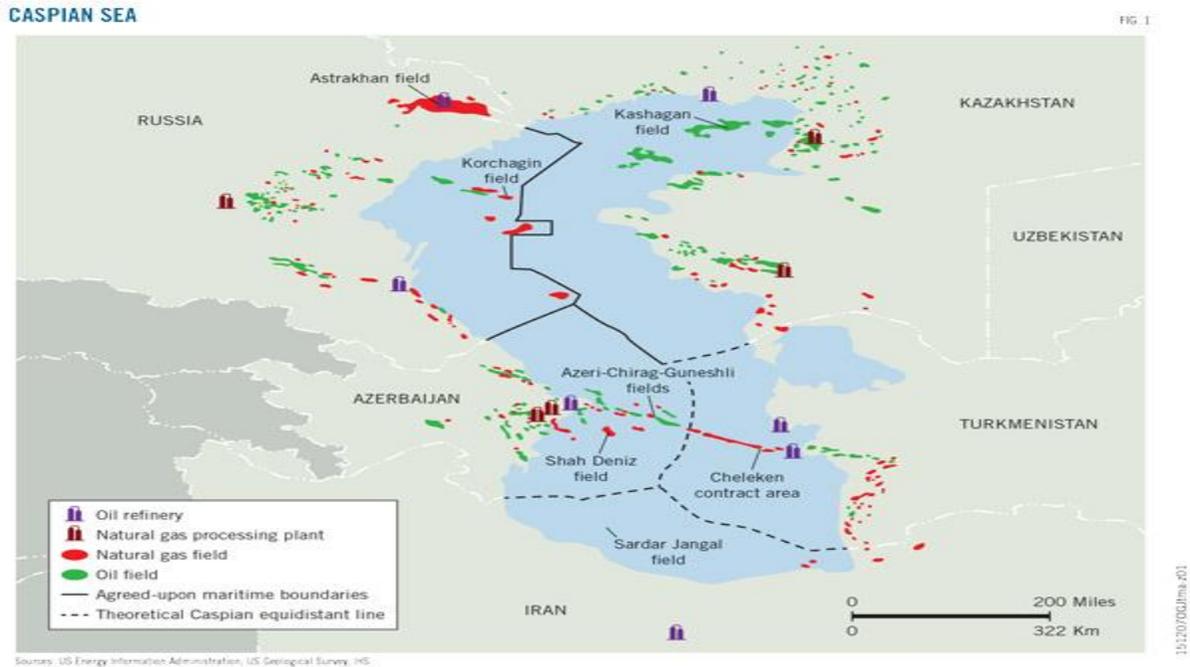


Figure 2: The five main oil and gas fields are shown here. The Kashagan, Korchagin, Azeri-Chirag-Guneshli, Shah Deniz and Sardar-e Jangal oil and gas fields contain the majority of hydrocarbon reserves in the Caspian Sea. Oil & Gas Journal. (2015). *Turkmenistan positions itself as Eurasian natural gas power*. Retrieved from <https://www.ogj.com/articles/print/volume-113/issue-12/transportation/turkmenistan-positions-itself-as-eurasian-natural-gas-power.html>

Azeri-Chirag-Gunashli

The Azeri-Chirag-Gunashli oilfield block was first discovered in 1970 approximately 120 km off of Azerbaijan’s coast (“BP: Azeri-Chirag-Deepwater Gunashli”, 2018). With an operating area of around 432 km it is the biggest offshore oilfield in the Caspian region with (“Socar: Azeri Chirag Deep Water Gunashli”, 2018). Estimations put the oil reserves of this field at more than 2 billion tons of oil and it is projected that 1.2 billion tons will be recovered by 2060 (“Status of offshore oil and gas contracts in Azerbaijan for December 2015”, 2016). In the first half of 2018 alone this this block produced 108 million tons of crude oil (“BP: Azeri-Chirag-Deepwater Gunashli”, 2018). In 1994 the Azeri government signed on to the Azeri-Chirag-Gunashli Production Sharing Agreement along with eleven foreign oil companies in order to begin development on the Azeri-Chirag-Gunashli oil block (McClatchy, 2013). This

agreement has a lifespan of thirty years and was one of the first instances of western multinational corporations investing in a country that was previously a Soviet republic. British Petroleum, SOCAR and Chevron own the highest shares of the field (“BP: Azeri-Chirag-Deepwater Gunashli”, 2018).

The first of these three fields to begin producing was the Chirag oil field in 1997. The Azeri field began producing between 2005 and 2006 while the Deepwater Gunashli field was not commissioned until 2008 (McClatchy, 2013). There are six production platforms that service over 150 wells drilled in the Azeri-Chirag-Gunashli block (“Status of offshore oil and gas contracts in Azerbaijan for December 2015”, 2016). Chirag 1, Central Azeri, West Azeri, East Azeri, Deepwater Gunashli and West Chirag are all connected to underwater pipelines responsible for transferring the extracted oil to the Sangachal terminal which houses the major pipelines flowing out of Baku (“BP: Azeri-Chirag-Deepwater Gunashli”, 2018).

Shah Deniz

The prospective area of the Shah Deniz field falls under the same type of Production Sharing Agreement as the Azeri-Chirag-Gunashli oil fields does. Stakeholders signed a thirty year agreement to explore, develop and share the production of this area in 1996 (“Status of offshore oil and gas contracts in Azerbaijan for December 2015”, 2016). In 1999, less than three years later, one of the largest gas fields in the world was discovered 55 km southeast off the coast of Baku. Shah Deniz has an operational area of 859.8 km (“Shah Deniz”, 2018). The field’s total reserves are estimated at approximately one trillion cubic meters of natural gas. In 2017, the President of Azerbaijan’s national petroleum company, SOCAR, revealed that approximately 85 billion cubic meters of natural gas has been recovered from the Shah Deniz gas field so far since it was first commissioned back in 2006 (Israfilbayova, 2017).

Shah Deniz Stage 1 came online in 2006 with the capacity to produce around ten billion cubic meters of gas annually (“Shah Deniz Stage 1”, 2018). The Baku-Tbilisi-Erzurum pipeline, which was also commissioned in 2006, was constructed solely for the purpose of exporting natural gas from the Shah Deniz field into Turkey (“Shah Deniz Stage 1”, 2018). Funded and operated by British Petroleum, the Shah Deniz Stage 1 ultimately connects Caspian gas to Turkey’s Southern Gas Corridor. This would make it possible in the near future to export gas from the Shah Deniz field to Europe without going through Russia. BP is also developing a Shah Deniz Stage 2 project which is projected to have the capacity to produce 16 billion cubic meters of natural gas annually (“BP starts-up landmark Shah Deniz 2”, 2018). This project looks to further develop the Shah Deniz block, looking into a possible oil field in the region, as well as expanding the capability of the Baku-Tbilisi-Erzurum pipeline (Timetric, 2018). The latest Timetric Construction Project Profile for the Shah Deniz Stage 2 states that as of May 2018, 99 percent of the project is complete (Timetric, 2018).

Kashagan

Located in Kazakhstan’s region of the Caspian Sea, the Kashagan oil field was discovered in 2000. It is the largest oil field to be commissioned in the last 40 years and is ranked in the top ten biggest oil fields in the world (Kosolapova, 2016). Reports state that the Kashagan field has proven reserves of 38 billion barrels of which 9-13 billion barrels are expected to be recoverable (Kosolapova, 2016). This field is the first off shore oil block that Kazakhstan has ever developed and officially began production in 2016 (North Caspian Operating Company NCOC, 2017). It is projected that by the year 2021 Kashagan will be able to produce 1.5 million barrels per day (Offshore Technology, 2013). At the beginning of 2018 NCOC announced that 10 million tons of crude oil have been exported in total (Aliyeva, 2018). Analysts at the Energy

Information Administration believe that Kazakhstan's development of the Kashagan field is closely related to the increase in global oil production (Aliyeva, 2018). Kazakhstan projects that the oil production from the Kashagan field will make the relatively new republic one of the top ten oil producers on the planet (Kosolapova, 2016).

The geology of the northern region of the Caspian Sea makes developing the Kashagan field a challenge. During the winter the temperature drops to -30 degrees Celsius. The waters surrounding the Kashagan field are frozen over for almost five months annually due to factors such as shallow depths of 3-4 meters, low temperatures and low salinity (NCOC, 2017). For this reason special measures have to be taken when developing the area. Custom barges and icebreaking tugboats were brought in for the construction and operation of this field. Kazakhstan could not afford this without the help of private investors. To the nations benefit the Kashagan oil field falls within territory that is subject to the North Caspian Sea Production Sharing Agreement. Signed in 1997 by the Republic of Kazakhstan, it offers private shareholders stake in the development of the area (NCOC, 2017). Kazakhstan needed financing from shareholders especially considering the fact that the Kashagan field was ranked as one of the most expensive oil fields in the world to operate in 2012 (Kosolapova, 2016). Due to the fact that it was relatively costly to develop, Kazakhstan will be responsible for ensuring that the shareholders are paid off over the next few decades. This means that the price of oil extracted from this field will be higher than average. Goldman Sachs projected in 2016 that in order for Kazakhstan to make any profit from this field they would need to sell oil at approximately \$120-\$130 per barrel while the average price was only \$50 (Kosolapova, 2016).

Sardar-e Jangal

The Sardar-e Jangal gas field is currently a shared field between Azerbaijan and Iran. Estimations of this field state that there is approximately 50 trillion cubic feet of natural gas, ten times more than what is in the Shah Deniz field, and 2 billion barrels of crude oil (Fallahi, 2018). The Sardar-e Jangal field was discovered in 2002 by Iran which at the time only thought it had 11 trillion cubic feet of natural gas in the Caspian region. In 2012, further exploration of this field revealed that there was a layer of oil 28 meters below the gas layer (Fallahi, 2018).

At the present time Iran is not being overly aggressive in trying to claim this field solely for themselves. The CEO of the Caspian Oil Company, Ali Osouli, associates this relaxed attitude with the fact that Iran does not have the technology to develop oil and gas at these great depths of 700 and 728 meters. This project would need major financing and the recent reductions of oil prices are not exactly helping persuade Iran to pursue this endeavor (Kazimov, 2015). While there have been two wells already drilled, and a third one pending, the Iranian Oil Ministry has publicly stated that extracting from these well would require backing from a partner that own the necessary technology (Kazimov, 2015). Realistically the Sardar-e Jangal field can only be developed with Azerbaijan's national petroleum company SOCAR, and its private partners, such as BP, in the picture.

Korchagin

Discovered in 2000, the Korchagin oil field is Russia's only offshore field. It is located in the northern Caspian Sea region and began production in 2010, ten years after being initially discovered ("Lukoil Drill First Production Well", 2018). The Korchagin field has proven reserves of approximately 570 billion barrels of oil. It is expected to have the capacity to export 2.5 million tons of oil and 1.2 billion cubic meters of natural gas annually by 2019 ("Yury

Korchagin Oil and Gas Field”, 2018). It is primarily owned and fully operated by Russia’s state owned petroleum company Lukoil.

The development of the Korchagin field is comprised of two phases. Phase 1 was completed in 2010 and faced similar construction complexities as the Kashagan field. An Ice Resistant Platform (IRP) was installed as well as an offshore transshipment facility. Phase 2 is expected to be completed by 2019 and involves installing infrastructure such as an additional IRP and subsea pipelines and power cables (“Korchagin Field”, 2018). Lukoil reports that the first wells have the capacity to produce almost 500 tons of crude oil per day. With future upgrades to these wells the extraction of both oil and natural gas is expected to increase. Most of the oil that is extracted from the Korchagin field is exported through the Caspian Pipeline Consortium system (“Korchagin Field”, 2018).

Conclusion

There are multiple factors at play within the Caspian Sea region that are all inter-related. The legal regime for this body of water will have profound impacts on the ability of the five littoral states to produce and efficiently export hydrocarbon resources to foreign markets. The Caspian Sea along with its littoral states hold both offshore and onshore gas and oil fields with some of the largest reserves in the world. It has the capacity to supply energy to European markets and reduce its dependence off of Russia. Europe’s need to diversify the sources of its energy, paired with the inability of eastern Caspian states to export their resources to western markets, demonstrates the need for a Trans-Caspian Pipeline. Azerbaijan’s energy sector is backed heavily by private western corporations who are interested in seeing oil and gas from Central Asia be connected to Turkey’s Southern Gas Corridor which would feed into Europe.

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The Azeri energy infrastructure has the capacity to facilitate this transfer from east to west by way of its vast pipeline system.

The role of western institutions and corporations within the Caspian Sea is limited but crucial. While Azerbaijan, Turkmenistan and Kazakhstan are all resource wealthy they are also all experiencing a prolonged period of economic crisis. They have pinned their economic recovery on their energy sectors. However, due to the fact that they have not recovered financially yet, they need help financing energy projects such as constructing pipelines and developing oil and gas fields. For this reason all three of these nations have signed Production Sharing Agreements. These contracts allow them to receive funding from corporations such as BP, Total and Chevron as well as from institutions like the World Bank and the EBRD in order to build and develop their energy projects in exchange for a share percentage. This symbiotic relationship is really the only way in which the west can push its agenda of creating an east to west corridor.

Unfortunately this concept of an east-west corridor is being deterred, primarily by Russia, who wishes to remain the only gateway that Central Asia can export its hydrocarbon resources to the west through. Russia is more concerned with keeping the legal status of the Caspian Sea in limbo. They recognize that if UNCLOS provisions are implemented this would have negative implications for them. Russia's dominance of the European energy market would be in jeopardy because UNCLOS allows for the installation of subsea pipelines and cables. This would allow Kazakhstan, Turkmenistan and other countries further east, such as Uzbekistan and Tajikistan, to export their energy resources to the west without having to go through Russia. Russia is more interested in blocking this export concept than they are with claiming more Caspian Sea territory for its resources.

The only other party involved who truly benefits from objecting to a legal regime that defines the Caspian as a sea under UNCLOS is Iran. However, while Iran does wish to share in a greater percentage of the Caspian's resources it seems relatively unbothered by its reduced share which came as a result of the most recent Caspian convention. This is because Iran does not have the technology necessary to develop the only field in its territory. Iran believes it is more profitable to share the field with Azerbaijan and focus its efforts on its investments in the Persian Gulf.

Ultimately, a legal regime that defines the Caspian as a sea under UNCLOS would benefit Europe, Azerbaijan, Turkmenistan and Kazakhstan. The most recent Caspian convention agreements indicate that Russia is achieving its goal of prolonging a concrete solution simply by throwing Iran under the bus and appeasing the rest of the littoral states with loosely defined maritime boundaries. This is Russia's tactic to distract actors away from the crucial issue at hand, which is the ability to create a subsea export pipeline, by giving in on the demarcation of territory. The Caspian Sea has the potential to service global energy needs. However, its potential to do so is being squandered by Russia. Azerbaijan, Turkmenistan and Kazakhstan must not capitulate in future Caspian Sea negotiations with Russia. From a utilitarian perspective this body of water needs to be defined as a sea. This type of legal regime will have benefits that will resonate locally with countries in Central Asia and the Caucasus as well as internationally out west.

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